

Amendment Under 37 C.F.R. § 1.111
Serial No.: 10/713,000
SUGHRUE MION, PLLC Ref: Q78312

REMARKS

Claims 1-17 are all the claims pending in the application. Claims 1-14 have been examined in the subject application. By way of this amendment, Applicants have amended claims 1, 13 and 14 to improve their clarity and to address the issues raised by the Examiner.

Turning to the Office Action, claims 1, 13 and 14 have been rejected under § 112 (second paragraph) as being indefinite. As noted above, Applicants have amended claims 13 and 14 to add the “,” requested by the Examiner. However, with respect to the terms “in-line” and “off-line”, Applicants respectfully submit that these terms would be immediately recognized by a person of ordinary skill in the art, particularly when read in conjunction with the specification, discussed below. Accordingly, this aspect of the § 112 (second paragraph) rejection is respectfully traversed. To the extent to which the Examiner maintains the rejection, Applicants respectfully request further clarification with regard to the rejection.

Turning to the § 112 (first paragraph) rejection of claim 1, Applicants traverse this rejection as well. Specifically, contrary to the Examiner’s assertion, it is submitted that the in-line and off-line phases of the claimed invention is described in the application. Specifically, the Examiner is respectfully referred to page 5, lines 3-21 of the specification wherein this aspect of the invention is discussed. As the Examiner can see, the term line refers to the fabrication line. Thus, the first phase of production is the in-line production phase in which the optical fiber 9 is formed from a pre-form, the primary coating 5 is applied at coating station 7 and, the primary coating is partially cured by curing station 11. As described in this portion of the specification, the fiber is exposed to radiation sufficient to obtain a touch dry coating. The specification

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further describes that the second phase occurs after leaving the fabrication lines. In this phase, the coating fiber is allowed to contact an oxidizing agent such as oxygen in order for the final cure of the primary coating to take place off-line (i.e., off the primary manufacturing line). The second phase can occur with the fiber spooled on the spool 14. In view of the foregoing, it is respectfully submitted that the specification provides written support for the in-line and off-line phases of the present invention. Accordingly, it is respectfully requested that this rejection be withdrawn as well.

Applicants now turn to the prior art rejections. In particular, claims 1-11 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Nonaka, et al. (European Patent No. 0501339 in view of Yamauchi (Japanese Patent No. 05032712). Claim 12 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Nonaka, et al. in view of Yamauchi and further in view of Bigley, Jr., et al. (U.S. Patent No. 5,485,541). Finally, claims 13 and 14 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Nonaka, et al. in view of Yamauchi and further in view of Dubois, et al. (U.S. Patent No. 6,565,775). For the following reasons, Applicants respectfully submit that independent claim 1 and its dependent claims patentably distinguish over the prior art.

The present invention is directed to a method of coating optical fiber including a step of coating said fiber with a specific coating composition and a step of in-line curing the composition to obtain a partly cured primary coating, followed by an off-line second phase of placing the coated fiber in an oxidizing medium in order to complete curing. In other words,

there are three essential aspects, i.e. i) in-line non-complete curing, ii) off-line complete curing and iii) the presence of an oxidation catalyst in the curable coating composition.

Nonaka et al. discloses a process of keeping the surface of a primary coating layer in an unhardened state which has been achieved by performing the process in an atmosphere in which oxygen is mixed into an inert gas, when the primary coating layer is hardened. By keeping the surface of the primary coating in an unhardened state it is possible to increase the adhesive strength between the primary coating layer and the secondary coating layer, i.e. a colored layer (see page 2, line 39-44, and line 55-57). The type of resin of the primary coating can be found in Table 1 on page 3. Nonaka et al. does not disclose the presence of an oxidation catalyst in the curable coating composition.

In fact, Nonaka et al. does not disclose more than the prior art document DE 41 26 860, which document has been extensively discussed in the originally filed description on page 3, line 18-28. From this German document it is known that the presence of oxygen has the effect of inhibiting the UV-radiation reaction. And inhibiting a crosslinking reaction means keeping the surface of a coating layer in an unhardened state. Therefore, Nonaka et al. does not disclose more technical information than the prior art document DE 41 26 860.

Yamauchi relates to a method for improving the adhesive property between the glass core and a cladding resin by adding a catalyst which promotes the condensation reaction of a coupling agent and glass. Applicant carefully reviewed the computer generated English translation of JP 05032712 and could not find the presence of an oxidation catalyst in the coating composition.

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Yamauchi discloses several types of condensation reaction accelerator catalysts, inter alia, a metal chelate compound, a metal alkoxide and an organo metallic compound. There is no information about a curable coating composition containing an unsaturated compound having a double bond and an oxidation catalyst. Therefore, the combination of Nonaka et al. and Yamauchi would not result in the combination of technical parameters as recited in claim 1 as pending. In addition, none of these documents discloses the two-step process of the invention, i.e. an incomplete in-line curing followed by a complete off-line curing of the coated fiber. Furthermore, neither document discloses the presence of an oxidation catalyst, which oxidation catalyst is essential for the present invention because the catalyst operates by promoting absorption of oxygen into the coating film; it catalyzes the formation and then the decomposition of peroxides. The presence of unsaturated compounds in the composition enables the curing reaction to occur by opening double bonds and bridging with an oxygen atom.

Further, neither document relates to a fiber drawing tower in which the optical fiber travels at high speed. And such a high speed, crosslinking is incomplete at the exit of the fiber drawing installation. Therefore, the technical problem underlying the present invention, as can be found in the originally filed description on page 4, line 8-11, has not been suggested in any of the prior art documents as on file now. Therefore, its technical solution as now claimed is not only novel but is non-obvious well.

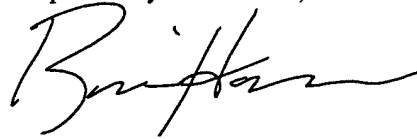
In view of the foregoing, it is respectfully submitted that all claims pending in the application are allowable. It is therefore requested that the application be passed to issuance at the earliest convenience. If any points remain in issue which the Examiner feels may be best

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resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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23373

CUSTOMER NUMBER

Date: December 29, 2006